ABSTRACT OF THE DISCLOSURE

A process for separating multibranched paraffins comprised in a hydrocarbon feed comprising hydrocarbons containing 5 to 8 carbon atoms per molecule comprises a separation unit functioning by adsorption and contains at least one zeolitic adsorbent with a mixed structure with principal channels with openings defined by a ring containing 10 oxygen atoms and secondary channels with openings defined by a ring of at least 12 oxygen atoms, the secondary channels only being accessible to the feed to be separated via the principal channels. Particular zeolitic adsorbents of the invention are zeolites with structure types EUO, NES and MWW. NU-85 and NU-86 zeolites are also particularly suitable for carrying out the process of the invention.